

CLAIMS

1. (Currently Amended) A porous particulate composition comprising a matrix of one or more catalytic components and at least one polymer having a plurality of covalently bound free olefin groups, wherein the catalyst component is an organometallic complex selected from the group consisting of Group 3-10 metals, non-metals, lanthanide metals, actinide metals and combinations thereof; and wherein the matrix is formed by reaction of the one or more catalytic components and the free olefin groups of the polymer.
2. (Currently Amended) The composition of claim 1, wherein the at least one polymer having a plurality of covalently bound free olefin groups is a macroporous polymer prepared in the presence of a porogen and is selected from the group consisting of divinylbenzene polymers, divinylbenzene copolymers, styrene/divinylbenzene copolymers, divinylbenzene resins, cross-linked divinylbenzene polymers, styrene/butadiene copolymers, styrene/isoprene copolymers, vinylsiloxane polymers, [[alkylsiloxane polymers,]] allylsiloxane polymers, [[condensation products of siloxane polymers having a plurality of olefin groups]] and combinations thereof.
3. Cancelled
4. (Currently Amended) The composition of claim 1, wherein the matrix further comprises one or more olefin polymerization catalyst components selected from the group consisting of: Ziegler-Natta catalysts, metallocene complexes of Group 3-10 metals, metallocene complexes of non-metals, metallocene complexes of lanthanide metals, metallocene complexes of actinide metals, single-site catalysts, single-site metallocene catalysts and combinations thereof, and at least one activator component [[and is used for polymerizing at least one olefin monomer selected from the group consisting of unbranched aliphatic olefins having from 2 to 12 carbon atoms, branched aliphatic olefins having from 4 to 12 carbon atoms, unbranched and branched aliphatic α -olefins having from 2 to 12 carbon atoms, conjugated olefins having 4 to 12 carbon

atoms, aromatic olefins having from 8 to 20 carbons, unbranched and branched cycloolefins having 3 to 12 carbon atoms, unbranched and branched acetylenes having 2 to 12 carbon atoms, and combinations thereof]].

5. (Previously Amended) The composition of claim 1, wherein the matrix is selected from the group of formulas consisting of: $[\text{Cp}^1\text{Cp}^2\text{MR}_x\text{L}]^+ [\text{NCA}]^-$, wherein M is a Group 4 metal, Cp^1 is a substituted or non-substituted cyclopentadienyl ring and Cp^2 is the same or different, substituted or non-substituted cyclopentadienyl ring and may be bridged symmetrically or asymmetrically to Cp^1 , R is hydride, alkyl, silyl, germyl or an aryl group, x is an integer equal to 0 or 1, L is formed by reaction of the Group 4 metal complex and the free olefin groups of the polymer and NCA is a non-coordinating anion; $[\text{Cp}^1\text{Cp}^2\text{MR}]^+ [\text{NCA}]^-$, wherein M is a Group 4 metal, Cp^1 is a substituted or non-substituted cyclopentadienyl ring and Cp^2 is the same or different, substituted or non-substituted cyclopentadienyl ring and may be bridged symmetrically or asymmetrically to Cp^1 , R is a hydrocarbyl group formed by reaction of the Group 4 metal complex and the free olefin groups of the polymer and NCA is a non-coordinating anion; $[\text{Cp}^1\text{MR}_x\text{L}]^+ [\text{NCA}]^-$, wherein M is a Group 4 or 6 metal, Cp^1 is a substituted or non-substituted cyclopentadienyl ring, R is a hydride, alkyl, silyl, germyl or an aryl group, x is an integer ranging from 0 to 6, L is formed by reaction of the Group 4 or 6 metal complex and the free olefin groups of the polymer and NCA is a non-coordinating anion; $[(\text{Multidentate})\text{MR}_x\text{L}]^+ [\text{NCA}]^-$, wherein M is a Group 4 or 6 or 8 or 9 or 10 metal, R is hydride, alkyl, silyl, germyl, aryl, halide or alkoxide group, x is an integer equal to 0, 1 or 2, multidentate is a bidentate, tridentate or tetradentate ligand containing nitrogen, sulfur, phosphorus and/or oxygen as coordinating atoms to the metal, L is formed by reaction of the Group 4 or 6 or 8 or 9 or 10 metal complex and the free olefin groups of the polymer and NCA is a non-coordinating anion; $(\text{Multidentate})\text{MR}_x\text{L}$, wherein M is a Group 4 or 6 or 8 or 9 or 10 metal, R is hydride, alkyl, silyl, germyl, aryl, halide or alkoxide group, x is an integer equal to 0, 1 or 2, multidentate is a bidentate, tridentate or tetradentate ligand containing nitrogen, sulfur, phosphorus and/or oxygen as coordinating atoms to the metal and L is formed by reaction of the Group 4 or 6 or 8 or 9 or 10 metal complex and the

free olefin groups of the polymer; $(Cp^1)_x(Cp^2)_yMR_xL^+[NCA]^-$, wherein M is a lanthanide or an actinide metal, R is hydride, alkyl, silyl, germyl, aryl, halide, alkoxide, amide or solvent ligand, R may also be a bidentate ligand containing nitrogen, sulfur, phosphorus and/or oxygen, $x = 0-2$, $y = 0-2$, L is formed by reaction of the lanthanide or actinide metal complex and the free olefin groups of the polymer and NCA is a non-coordinating anion and combinations thereof.

6. Cancelled

7. Cancelled

8. Cancelled

9. Cancelled

10. Cancelled

11. Cancelled

12. Cancelled

13. Cancelled

14. Cancelled

15. Cancelled

16. Cancelled

17. Cancelled

18. Cancelled

19. Cancelled

20. Cancelled

21. (Previously added) A porous particulate composition comprising a matrix of at least one macroporous polymer having a plurality of free olefin groups selected from the group consisting of: divinylbenzene polymers, divinylbenzene copolymers, styrene/divinylbenzene copolymers, divinylbenzene resins, cross-linked divinylbenzene polymers, styrene/butadiene copolymers, styrene/isoprene copolymers, vinylsiloxane polymers, allylsiloxane polymers and combinations thereof; and at least one Ziegler-Natta catalyst, wherein the matrix is formed by reaction of the at least one Ziegler-Natta catalyst and the free olefin groups of the polymer.

22. (Previously added) The porous particulate composition according to claim 21, wherein the Ziegler-Natta catalyst comprises at least one titanium compound, at least one magnesium compound and at least one aluminum compound.

23. (Previously added) A porous particulate composition comprising a matrix of at least one macroporous polymer having a plurality of free olefin groups selected from the group consisting of: divinylbenzene polymers, divinylbenzene copolymers, styrene/divinylbenzene copolymers, divinylbenzene resins, cross-linked divinylbenzene polymers, styrene/butadiene copolymers, styrene/isoprene copolymers, vinylsiloxane polymers, allylsiloxane polymers, and combinations thereof; and at least one catalyst further comprising at least one chromium compound and at least one silicon compound, wherein the matrix is formed by reaction of the at least one catalyst and the free olefin groups of the polymer.